

Claims:

1. A vehicular antenna which is a line antenna provided on a surface of a window glass or a surface of an insulating member of a movable body such as a vehicle, the vehicular antenna comprising:

a first element extended from a first feeding point and having a length of either  $1/4$ ,  $3/4$  or  $5/4$  of a wavelength of transmission and reception radio wave; and

a second element formed into a closed loop which is extended from a second feeding point provided in the vicinity of the first feeding point so as to surround the first element, and having a length equal to or longer than one wavelength of the transmission and reception radio wave.

2. The vehicular antenna according to Claim 1, wherein a linear portion extended from the first feeding point of the first element includes:

a first linear portion extending close to a closed loop line of the second element with a length of  $1/8$  or shorter of the wavelength of the transmission and reception radio wave for a capacity coupling; and

a second linear portion extending from a distal end of the first linear portion in a direction in which the second linear portion extends away from the second element.

3. The vehicular antenna according to Claim 1, wherein a portion spaced apart along a linear portion extended from the second feeding point of the second element by  $1/4$  of the wavelength of the transmission and reception radio wave is provided apart from an opposite end portion to the first feeding point of the first element by  $1/32$  or longer of the wavelength.

4. The vehicular antenna according to Claim 1, wherein a feeding point for the second element formed into the closed loop is provided at a distal end of a leading line along the closed loop, and the length of the leading line is  $1/4$  or shorter of the wavelength of the transmission and reception radio wave.

5. The vehicular antenna according to Claim 1, wherein, instead of placing the first feeding point and the second feeding point close to each other, a metallic terminal is placed on at least one of the first feeding point and the second feeding point, and either one of the feeding points or the metallic terminal is placed close to either the other of the feeding points or the metallic terminal.

6. The vehicular antenna according to Claim 2, wherein the first linear portion extending from the first feeding point of the first element with the length of  $1/8$  or shorter of the wavelength of the transmission and reception radio wave is close

to the second element with a spacing of 0.1 to 10mm.

7. The vehicular antenna according to Claim 1, wherein a length of a linear portion of the closed loop of the second element is equal to or longer than one wavelength of the transmission and reception radio wave but not in excess of four wavelengths.

8. The vehicular antenna according to Claim 7, wherein the length of the linear portion of the closed loop of the second element is  $(1+n/2)\lambda$  ( $n$  is an integer of 0 to 6), assuming that the wavelength of the transmission and reception radio wave is  $\lambda$ .

9. The vehicular antenna according to Claim 1, wherein the first elements are provided at a plurality of locations inside the second element formed into the closed loop, and respective first feeding points of the plurality of first elements are positioned in the vicinity of the second feeding point of the second element.

10. The vehicular antenna according to Claim 1, wherein the second element is formed into a closed loop of a polygonal or arc-like shape.

11. The vehicular antenna according to Claim 1, wherein the length of the first element is  $3/4$  of the wavelength of the transmission and reception radio wave, and a spacing between the first element and the second element at a portion linearly extended from the first feeding point by a length of  $1/2$  of the wavelength of the transmission and reception radio wave is 0.5 to 10mm.

12. The vehicular antenna according to Claim 1, wherein the length of the first element is  $5/4$  of the wavelength of the transmission and reception radio wave, and a spacing between the first element and the second element at a portion linearly extended from the first feeding point by one wavelength of the transmission and reception radio wave is 0.5 to 10mm.

13. The vehicular antenna according to Claim 1, wherein the length of the second element is longer by  $1/4$  or longer of the wavelength of the transmission and reception radio wave than the length of the first element.

14. The vehicular antenna according to Claim 1, wherein the length of the second element is  $(1+n/2)\lambda$  ( $n$  is an integer of 0 to 4), assuming that the wavelength of the transmission and reception radio wave is  $\lambda$ .

15. The vehicular antenna according to Claim 1, wherein, on a surface of a window glass or an insulating member of the movable body such as the vehicle, a pattern of the antenna elements is directly printed using a conductive ceramic paste or the like, or a seal or sheet on which the pattern is printed is affixed.